

NATURAL HISTORY MISCELLANEA

Published by
The Chicago Academy of Sciences

Lincoln Park-2001 N. Clark St., Chicago 14, Illinois, U.S.A.

No. 162

March 17, 1958

Records of Fleas (Siphonaptera) from Illinois Mammals

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This paper is based on a collection of fleas made incidental to mammal studies conducted in Illinois in 1954 and 1955. Over 800 fleas of five families and 17 species were collected from approximately 900 mammals of 38 species examined. Of the latter number, 19 species were hosts of Siphonaptera.

Fleas were obtained from mammals taken in nine counties. With the exception of two collecting stations in northern Illinois and one in central Illinois, all localities were situated in the southern part of the state. Larger mammals were secured by shooting, steel-trapping, or as road-kills, while the smaller forms were collected almost exclusively with snap traps. Bats were shot during the warmer months and collected in buildings, caves, and mines at various times of the year.

The nomenclature here employed for the fleas follows Jellison *et al.* (1953). Identifications of the mammalian hosts are carried to subspecies only in those cases where the taxonomic status of the population concerned is not questionable. For the sake of brevity, localities are recorded to the nearest town appearing on a standard road map, although in all instances the actual collecting site was from / to 10 miles from the given town.

Acknowledgements

The field work upon which this report is based was done while the writer was a member of the staffs of the Department of Zoology and Wildlife Research Laboratory, Southern Illinois University, Carbondale. Appreciation is expressed to the following persons for generous help in a number of ways: Dr. **W.** D. Klimstra, F. W. White ; R. Yates, B. **J.** Verts, E. Stadelbacher, E. Triner, R. Shoop, K. Hill, and

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J. Warnock. The work was supported by a grant from the Graduate School, Southern Illinois University.

Species List

Family PULICIDAE

Cediopsylla simplex (Baker) . This was an abundant flea on the two species of rabbits occurring in southern Illinois and was recorded twice from the gray fox. It was noted in recently killed swamp rabbits that *Cediopsylla* tended to concentrate on the head, particularly about the eyes, ears, nostrils, and lips. One individual examined during its death throes had a compact mass of approximately 30 fleas of this species on the anterior edge of the ears, partly protected by the revolute margin of the latter. The fleas began to disperse from this site immediately after the animal died.

Alexander Co.: ex *Sylvilagus floridanus*—Cache, Dec. 29, 1954 (21 males, 24 females) ; Jan. 15, 1955 (10 males, 7 females) ; Feb. 12, 1955 (30 males, 26 females). Ware, Jan. 8, 1955 (33 males, 61 females). ex *Sylvilagus a. aquaticus*—Cache, Jan. 2, 1955 (1 female) ; Jan. 15, 1955 (5 males, 7 females) ; Feb. 12, 1955 (76 males, 111 females). Ware, Jan. 8, 1955 (29 males, 62 females).

Jackson Co.: ex *Sylvilagus floridanus*—Pomona, Nov. 6, 1954 (2 males, 4 females). Vergennes, Jan. 1, 1955 (7 males, 3 females). ex *Sylvilagus a. aquaticus*—Vergennes, Jan. 1, 1955 (4 females).

Marion Co.: ex *Sylvilagus a. aquaticus*—Salem, Jan., 1955 (1 female) .

Perry Co.: ex *Urocyon c. cinereoargenteus*—Cutler, Mar. 11, 1955 (1 female) . ex *Sylvilagus floridanus*—Pyatt, Nov. 23, 1954 (2 males, 3 females) ; Dec. 4, 1954 (7 males, 3 females) ; Dec. 14, 1954 (2 males, 2 females) .

Union Co.: ex *Urocyon c. cinereoargenteus*—Alto Pass, 1955 (1 female) . ex *Sylvilagus floridanus*—Cobden, Dec. 16, 1954 (1 male) .

Ctenocephalides canis (Curtis). Seven specimens of the dog flea were collected . from gray foxes and a single feral housecat.

Union Co.: ex *Urocyon c. cinereoargenteus*—Alto Pass, Feb., 1955 (2 females) ; Mar., 1955 (2 females). ex *Felis catus*—Alto Pass, Jan. 27, 1955 (1 male, 2 females).

Ctenocephalides felis (Bouché) . Eleven specimens were collected from the gray fox. Although both this flea and the preceding were taken in southern Illinois on the same wild host (*Urocyon*) , the two forms were never found together on the same specimen.

Jackson Co.: ex *Urocyon c. cinereoargenteus*—Carbondale, Apr. 18, 1955 (4 males, 7 females).

Family VERMIPSYLLIDAE

Chaetopsylla lotoris (Stewart) . The ten specimens of this flea collected were taken from gray foxes. Although the raccoon, *Procyon lotor*, is considered the typical host for this species, none were found on several raccoons that were carefully examined for fleas.

Jackson Co.: ex *Urocyon c. cinereoargenteus*—Murphysboro, Dec. 25, 1954 (2 females).

Union Co.: ex *Urocyon c. cinereoargenteus*—Alto Pass, Dec., 1954 (1 female) ; Jan., 1955 (1 male, 3 females) ; Feb., 1955 (2 females) ; winter, 1955 (1 female) .

Family HYSTRICHOPSYLLIDAE

Stenoponia americana (Baker). Twenty-five specimens were collected from two species of *Peromyscus* in southern Illinois. It has been stated (Fox, 1940) that *Stenoponia* is essentially a fall and winter species, and the dates of its collection in Illinois fall within the range (September to April) of the records noted by Fox.

Alexander Co.: ex *Peromyscus leucopus*—Cache, Oct. 30, 1954, (1 female).

Jackson Co.: ex *Peromyscus leucopus*—Carbondale, Nov. 8, 1954 (2 males, 5 females).

Perry Co.: ex *Peromyscus m. bairdii*—Pyatt, Jan., 1955 (1 male) . ex *Peromyscus leucopus*—Pyatt, Mar. 12, 1955 (2 males, 3 females) ; Mar. 16, 1955 (7 females).

Union Co.: ex *Peromyscus leucopus*—Aldridge, Jan. 9, 1955 (2 males, 1 female) . Wolf Lake, Dec. 19, 1954 (1 male) .

Epitedia wenmanni (Rothschild) . Hopkins (1954) described the male of *Epitedia testor* (Rothschild) and indicated that this form should probably be considered as a subspecies of *E. wenmanni*. His treatment of the two forms was confirmed by Benton (1955) , who mapped their distribution in North America. The separation of specimens of the two subspecies is based principally upon differences in the relative proportions of the claspers of the males, the three critical measurements employed being designated as A, B, and C. Benton (1955) states that the ratio of C to A varies from 70 to 110 percent in *E. w. wenmanni* and from 30 to 50 percent in *E. w. testor*. Specimens in which the ratio was from about 50 to 60 percent he regarded as intergrades. On the basis of male specimens, Benton indicated that the subspecies *wenmanni* occurs in about the northern one-third of Illinois and *testor* through the remainder of the state. A single intergrade male was plotted.

Specimens taken during the present study suggest that the zone of

intergradation between the two subspecies in Illinois may be rather broader than shown by Benton. In one male from northern Illinois and two from the southern part of the state the ratios of C to A are 50, 48, and 50 percent, respectively. A series of females from southern Illinois tends to approach *wenmanni* more than *testor* in the shape of the sinus of the 7th sternite. The sinus is generally deep and with the upper lobe more or less acute and sometimes even faintly recurved. The sinus is ordinarily shallow and the upper lobe more rounded in *testor*. In view of the intermediacy of their characters, it does not appear advisable to attempt to refer these specimens to subspecies.

Lake Co.: ex *Peromyscus m. bairdii*—Waukegan, Mar. 28, 1954- (1 female) . ex *Peromyscus leucopus*—Waukegan, Mar. 28, 1954 (1 male).

Perry Co.: ex *Peromyscus m. bairdii*—Pyatt, Jan., 1955 (1 female) ; Feb. 28, 1955 (2 males, 2 females). ex *Peromyscus leucopus*—Pyatt, Jan., 1955 (1 female) ; Mar. 12, 1955 (1 male, 4 females) ; Mar. 16, 1955 (1 female).

Union Co.: ex *Scalopus a. machrinus*—Aldridge, Jan. 9, 1955 (1 female). ex *Peromyscus leucopus*—Aldridge, Jan. 9, 1955 (1 sex unknown). ex nest of *Peromyscus nuttalli aureolus*—Aldridge, Dec. 19, 1954 (2 males).

Corrodopsylla curvata curvata (Rothschild) . The true hosts of this species are considered to be shrews of the genus *Sorex*, although it has also been taken on the short-tailed shrew, *Blarina*. The single specimen obtained in the present survey from the little short-tailed shrew, *Cryptotis*, appears to represent the first record of its occurrence on this mammal.

Alexander Co.: ex *Cryptotis parva*—Cache, Apr. 9, 1955 (1 female).

Ctenophthalmus pseudagyrtes pseudagyrtes Baker. This flea parasitizes a variety of small mammals, with insectivores being perhaps the favored hosts. The greatest numbers per individual host were taken on two moles examined. Individuals of the four species of cricetid mice from which this flea was also collected harbored at most only two specimens.

Alexander Co.: ex *Peromyscus leucopus*—Tamms, Apr. 3, 1955 (1 female). ex *Microtus o. ochrogaster*—Tamms, Apr. 3, 1955 (1 male, 1 female) .

Jackson Co.: ex *Scalopus a. machrinus*—Carbondale, Oct. 9, 1954 (7 males, 4 females).

Perry Co.: ex *Peromyscus m. bairdii*—Pyatt, Feb. 28, 1955 (1 male). ex *Peromyscus leucopus*—Pyatt, Mar. 12, 1955 (1 female).

Union Co.: ex *Scalopus a. machrinus*—Aldridge, Jan. 9, 1955 (1 male, 5 females). ex nest of *Synaptomys cooperi gossii*—Aldridge, Feb. 7, 1955 (2 females). ex *Pitymys pinetorum*—Aldridge, Jan. 9, 1955 (1 female) ; Feb. 7, 1955 (1 female).

Conorhinopsylla stanfordi Stewart. This species, which is apparently associated primarily with tree and flying squirrels, was collected on a single occasion from a specimen of the latter.

Alexander Co.: ex *Glaucomys v. volans*—Olive Branch, Oct. 30, 1954 (3 males, 1 female).

Family CERATOPHYLLIDAE

Odontopsyllus multispinosus (Baker) . This species was recorded only on the two species of rabbits inhabiting southern Illinois. Its frequency of occurrence and numbers per individual host were far less than in the case of *Cediopsylla simplex*, which is also associated primarily with rabbits.

Alexander Co.: ex *Sylvilagus floridanus*—Cache, Feb. 12, 1955 (2 males, 1 female) . ex *Sylvilagus a. aquaticus*—Cache, Feb. 12, 1955 (3 males, 4 females) . Jackson Co.: ex *Sylvilagus floridanus*—Pomona, Nov. 6, 1954 (1 male) . Perry Co.: ex *Sylvilagus floridanus*—Pyatt, Dec. 14, 1954 (1 male, 1 female) . Union Co.: ex *Sylvilagus floridanus*—Cobden, Dec. 14, 1954 (1 male) .

Monopsyllus wagneri (Baker) . A single specimen obtained from a white-footed mouse in northern Illinois apparently represents a substantial eastward extension of the known range of this species. The previous marginal record was Dubuque, Iowa (Fox, 1940) . Several subspecies are recognized, but since the trenchant diagnostic characters are best developed in the female it is not possible to refer the present specimen, a male, to one of the described races. Fox (1940) believed the Iowa example, also a male, to be referable to *M. w. wagneri*.

Lake Co.: ex *Peromyscus leucopus*—Waukegan, Mar. 28, 1954 (1 male).

Opisocrostitis bruneri (Baker) . Five specimens were obtained from the thirteen-lined ground squirrel in northern Illinois. *Citellus tridecemlineatus* and *C. franklini* are considered to be the type hosts of this species (Jellison, 1947) . On this basis, *O. bruneri* would not be expected to occur in southern Illinois, beyond the range of these ground squirrels.

Cook Co.: ex *Citellus t. tridecemlineatus*—North Riverside, Sept. 6, 1954 (2 males, 3 females).

Orchopeas howardii howardii (Baker) . This species is apparently a true parasite of the gray squirrel, although it occurs regularly on other species of hosts within the range of the former (Holland, 1949) . No specimens of this flea were collected from five specimens of *Sciurus*

carolinensis examined, although records were obtained for three other sciurids. Its presence on the gray fox can in all probability be considered as accidental.

Alexander Co.: ex *Glaucomys v. volans*—Olive Branch, Oct. 30, 1954 (1 male, 2 females).

Jackson Co.: ex *Tamias striatus*—Carbondale, May 2, 1955 (1 female). ex *Glaucomys v. volans*—Carbondale, Oct. 11, 1954 (1 male, 1 female).

Union Co.: ex *Sciurus niger rufiventer*—Mountain Glen, Sept. 8, 1954 (3 females). ex *Urocyon c. cinereoargenteus*—Alto Pass, Jan., 1955 (1 female).

Orchopeas leucopus (Baker) . This species is pre-eminently a parasite of mice of the genus *Peromyscus*. A total of 110 specimens was collected from three species of these mice.

Alexander Co.: ex *Peromyscus leucopus*—Cache, Oct. 31, 1954 (3 females) ; Apr. 9, 1955 (1 male). Tamms, Apr. 3, 1955 (2 females).

Carroll Co.: ex *Peromyscus leucopus*—Mt. Carroll, Dec. 26, 1954 (1 male).

Lake Co.: ex *Peromyscus m. bairdii*—Waukegan, Mar. 28, 1954 (4 females) . ex *Peromyscus leucopus*—Waukegan, Mar. 28, 1954 (1 male, 2 females).

Perry Co.: ex *Peromyscus m. bairdii*—Pyatt, Jan., 1955 (5 males, 26 females) ; Feb. 28, 1955 (14 males, 21 females). ex *Peromyscus leucopus*—Pyatt, Jan., 1955 (1 male, 4 females) ; Feb. 28, 1955 (2 males, 5 females) ; Mar. 12, 1955 (2 males, 5 females) ; Mar. 16, 1955 (2 males, 6 females).

Union Co.: ex *Peromyscus leucopus*—Aldridge, Jan. 9, 1955 (1 male) ; Feb. 7, 1955 (1 male) . ex *Peromyscus nuttalli aureolus*—Aldridge, Dec. 19, 1954 (1 female) .

Orchopeas sexdentatus (Baker) . Specimens of *Orchopeas* taken from woodrats in southern Illinois appear to be referable to this species but differ from all of its described subspecies in a number of characters. There is little doubt that these fleas represent an undescribed population of at least subspecific rank. During the course of the field work, the writer learned that Lt. Col. Robert Traub, U. S. Army Medical Service Corps, had previously obtained several specimens of an apparently new *Orchopeas* from *Neotoma* in Arkansas. Traub has compared the Arkansas material with Illinois specimens and found them similar. The latter are here provisionally assigned to *O. sexdentatus* pending further study by Traub.

Union Co.: ex *Neotoma floridana illinoensis*—Aldridge, July 11, 1954 (1 male, 8 females) ; July 25, 1954 (3 males, 5 females, 1 sex unknown) ; Aug. 8, 1954 (3 males, 5 females) ; June 13, 1955 (27 males, 20 females, 1 sex unknown).

Peromyscopsylla scotti I. Fox. Ten specimens of this flea were taken from 105 *Peromyscus leucopus* examined. In view of the fact that the mice were collected throughout the year, the occurrence of *Peromys-*

copsylla only in the winter months is perhaps suggestive of some seasonal trend in abundance or activity on the host.

Union Co.: ex Peromyscus leucopus—Aldridge, Jan. 9, 1955 (2 males, 2 females) ; Feb. 7, 1955 (1 female). Wolf Lake, Dec. 19, 1954 (4 males, 1 female).

Family ISCHNOPSYLLIDAE

Myodopsylla insignis (Rothschild) . Although 245 bats of ten species were collected throughout the year, only two specimens of bat fleas were obtained. One specimen was collected from a *Myotis austroriparius* in hibernation in a natural cave, while the other specimen was taken from a little brown myotis in a summer colony in an attic of a building.

Hardin Co.: ex Myotis austroriparius mum f ordi—Rosiclare, Dec. 21, 1954 1 female).

Jackson Co.: ex Myotis l. lucifugus—Carbondale, June 20, 1955 (1 male) .

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